AES meeting Notes, Jan 6

From Hasan Padamsee, Jan 8

AES has done a very good job. They have done a lot of pre-consultation with DESY. They clearly have good experience with making other Nb cavities. The overall prospects are good. They have obtained Epk = 60 MV/m in some of their recently welded cavities when tested at Jlab.

They went through a 100-slide presentation showing all parts of a detailed manufacturing plan.
They expect the first cavity to be finished in October 06 and next 4 soon after.
The critical path is the end-groups, but resources have been leveled to make most tasks even.

They have already made the cup dies and the tube forming dies, and proofed these out in aluminum. They showed us sample cups and sample tubes and the many stage dies. CMM measurements should be carried out on final parts. Frequency measurements will be carried out at fnal/AES on first end cells and center cells before full production.

They intend to carry out a lot of mock up welding to tune up parameters and determine shrinkages. RRR samples will be provided for weld chamber vacuum quality checks.

They have carefully thought through all the steps for fabrication, cleaning, weld sequences, sub assemblies, dimensional checks. There will be much going back and forth between AES and ebtech for welding parts, and performing subsequent cleaning operations. They developed transport fixtures; we suggested improvements. They have developed fixtures for welding many dumbbells in one pumpdown. They plan to use travelers to follow all parts and processes.

It is possible that the Cornell clean bench may be available at ebtech to assemble parts before putting them in welder.

They have installed parts chem. facility for cold bcp, good cleaning, capabilities, and one class 10 clean bench.

AES expects to obtain a new beam welder to be commissioned by fall 06.

Some open questions

Fermilab had a mix-up on sheet thickness between drawings (0.118") and actual sheets (0.125). The final collar may still work but could cause ripples due to extra thickness; if a problem, new dies will have to be made and hydroforming procedure re-proofed.

The length of the (long) beam tubes is open, but this should be finalized in a week or so to avoid schedule impact. It would be good if the AES (US) cavities could be used in the first or second US cryomodule, which are of Generation3.

Use RRR material for stiffeners? yes
Use reactor grade material for Nb disk attached to Titanium He vessel end plate?
Should Nb-Ti end plate be annealed before dishing for conical shape?
Make device to check notch frequency of HOM coupler?